The Huyett & Smith Manufacturing Company

Detroit, Mich.

U.S.A.

SECTIONAL CATALOGUE,

HEATING & VENTILATING

APPARATUS.

Sectional Catalogue

RELATING TO

Heating and Ventilating Apparatus

FOR

Factories, Schools, Churches, Theatres, Halls, Apartment Houses,

and all Public Buildings.

ISSUED BY THE

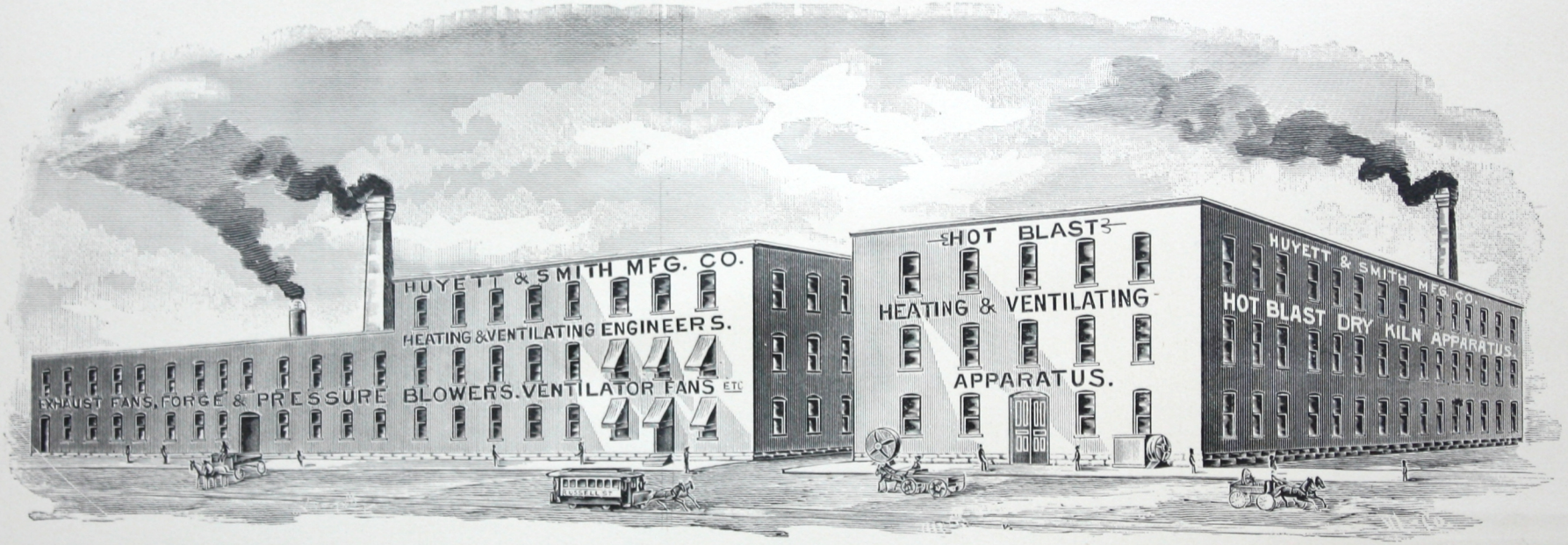
Hugett & Smith Mfg. Co.

1400 RUSSELL STREET,

Detroit, Mich., U. S. A.

CHICAGO BRANCH.
NOS.
26 AND 28
RANDOLPH ST

1890


HUYETT & SMITH MFG. CO.
HEATING & VENTILATING ENGINEERS.
EXHAUST FANS, FORGE & PRESSURE BLOWERS. VENTILATOR FANS ETC
HOT BLAST
HEATING & VENTILATING
APPARATUS.
HUYETT & SMITH MFG. CO.
HOT BLAST DRY KILN APPARATUS.

INTRODUCTORY.

HEATING AND VENTILATING

THE VAST IMPORTANCE of this subject from a sanitary standpoint has called to it the attention of the ablest engineers, and volumes of valuable facts; experiments and statistics have been published, and great strides made in the practical application of the best principles evolved. It is not intended in these few pages to go into the subject at all, further than to say that we believe our system comprehends the best principles of heating and mechanical ventilation separately or combined, and that we have the most perfect and complete apparatus obtainable for this purpose.

We plan and contract for heating and ventilating plants of all descriptions, furnishing everything (when required) from boilers to the least fixture required, for completing the entire plant ready for operation.

Architects and sanitary engineers are solicited to correspond with us relative to plans for Heating and Ventilating plants by our system, for which they are preparing plans or contemplating changes in plants already completed. We employ mechanical engineers and draughtsmen who have had years of experience in this line of business, and our customers may rest assured that anything we undertake for them in the line of Heating and Ventilating will be carried out and completed in the most scientific and satisfactory manner.

We have made and added many improvements in our apparatus and machines within the past two years, and in this particular we shall still continue to be found in the lead, or second to none of our competitors. We have recently added to our plant many new and modern tools, which, together with the new additions to our works, gives us ample room in the different departments required for the construction of our various machines and appliances. Our aim, as in the past, shall be to turn out nothing but FIRST-CLASS WORK, and by paying close attention to business and the requirements of the trade in our line, we hope to merit the confidence of our patrons as in the past.

Our business growth for the past seven years has been almost phenomenal, having nearly doubled each year, for which we feel justly proud, and we desire to thank our former patrons for their share in contributing to our success, and we shall continue to do business at the old stand, and in the old way, treating every one justly and with business courtesy, maintaining the high reputation for the excellence of our machines.

HUYETT & SMITH MFG. CO.

DESCRIPTION.

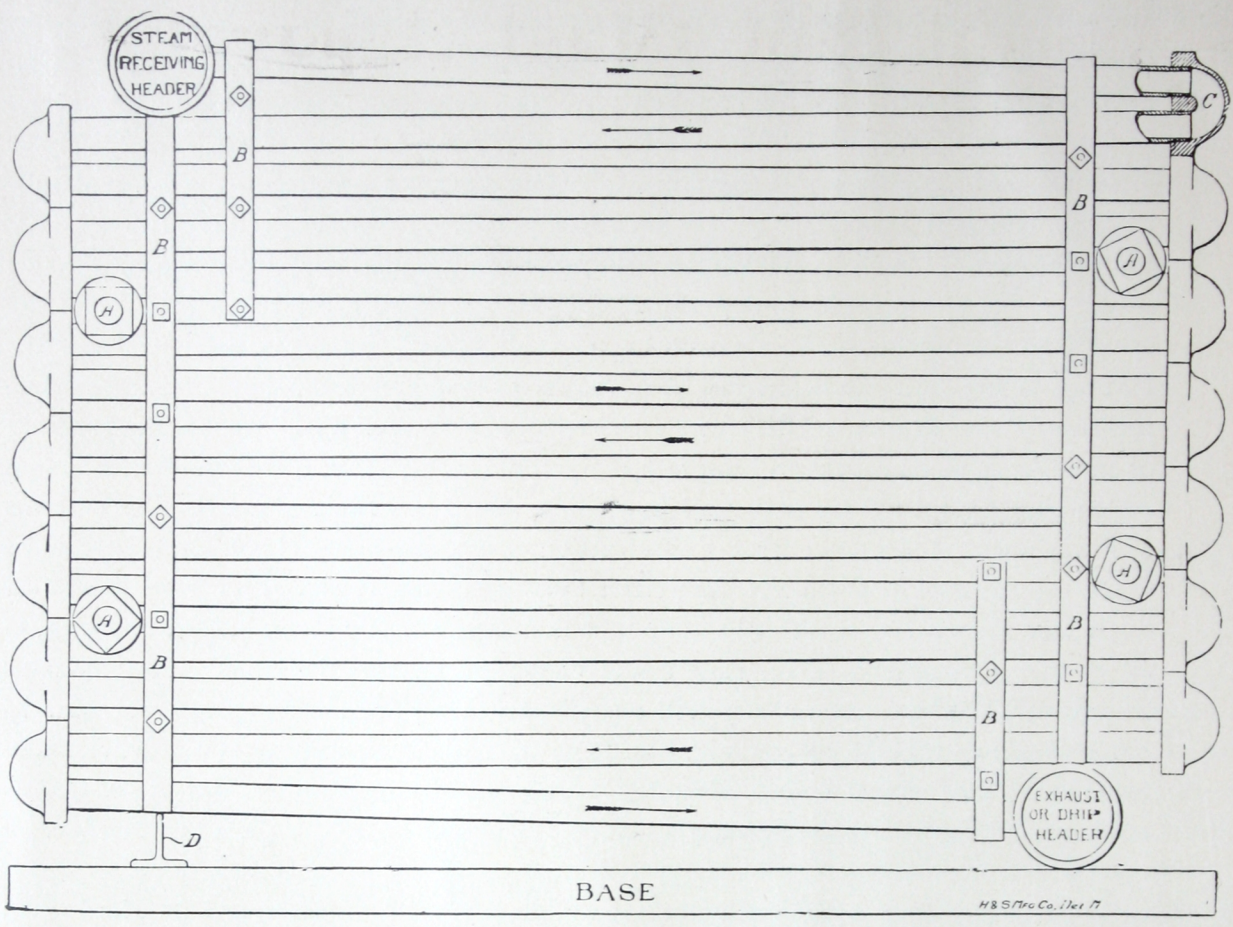
THE SMITH HOT BLAST APPARATUS.

THE APPARATUS consists of a Fan and Heater placed on one base or platform, the Heater being enclosed in a sheet steel jacket with wrought angle iron frames, the Fan being connected to the heater jacket by a sheet steel cone, the entire Heater case and cone connection being put together with bolts so that they can be easily taken apart or removed, should necessity require it. The apparatus is supplied with straight-way gate valves, for both live and exhaust steam, drip valves, steam trap, and best vacuum brass oilers on fan bearings. These apparatus (except the very large ones) are shipped set up complete, with all connections made ready for running into position and operation, as soon as belt or steam is put on.

The Fan attached to our Heater is what is known as the Smith Disc Fan Blower, the shell and fan blades being constructed of the best homogeneous sheet steel, steel shaft of large diameter, and long, perfectly adjustable bearings lined with the best anti-friction metal. The wheel of this Fan is of the lightest as well as the strongest possible construction, which insures the MOST EFFICIENCY for the LEAST AMOUNT OF POWER required to operate it, and it is also the only style of Fan which is ESPECIALLY ADAPTED for use in connection with Hot Blast Apparatus, where only a moderate velocity with great volume of air blast is required, which is invariably the requirements in heating, ventilating, or drying. We manufacture every style of Fan or Blower made, and after repeated competitive trials of the various styles and kinds of Fans and Blowers, we have found that our Smith Disc Fan Blower will deliver fully 50 per cent more air for the same amount of power required to operate than any other style of fan or blower made, and the use of this FAN in connection with our Heaters is one of the patented features of our apparatus.

Our Heaters are made of the heaviest steel or wrought-iron pipe, and all the headers, return bends, nipples, fittings throughout, are of our own manufacture, extra heavy, and of the best possible material and design for the requirements. We make these Heaters in one, two, three, or four sections, as may be desired for using either live or exhaust steam, separately or combined, and every Heater is tested in our factory after completion, to 200 lbs. hydraulic pressure, which is equivalent to 230 lbs. steam pressure. Our sectional Heaters are cross connected between sections, so that ANY SECTION can be used for either live or exhaust steam, or changed from one to the other at will. The Heater coils are so arranged that any one coil or row of pipe can be removed or repaired without disturbing the balance of the Heater; in fact, no other heater can be so readily or easily repaired, should repairs become necessary. Our Heater coils are arranged horizontally in such a manner that the breaking or straining of pipe headers or fittings by expansion or contraction is entirely overcome (see cut on page 6) and still the heater is self-draining, and is less liable to freeze up in extreme cold weather than any other form of construction, and it is the only Hot Blast Heater made at the present time in which ALL the STEAM that enters the Heater MUST PASS THROUGH the heater pipes before reaching the drip or waste pipe; thus, no steam or heat is wasted, as all of the condensation even, runs ahead of the steam, and the latent heat contained therein is utilized; moreover, any well posted steam fitter or caloric engineer will bear us out in the statement that, all conditions being equal, horizontal steam pipes will deliver more heat units than vertical ones. Summing up all points for or against our apparatus, as compared with others in the market, it will be found that the Smith takes the lead over all others.

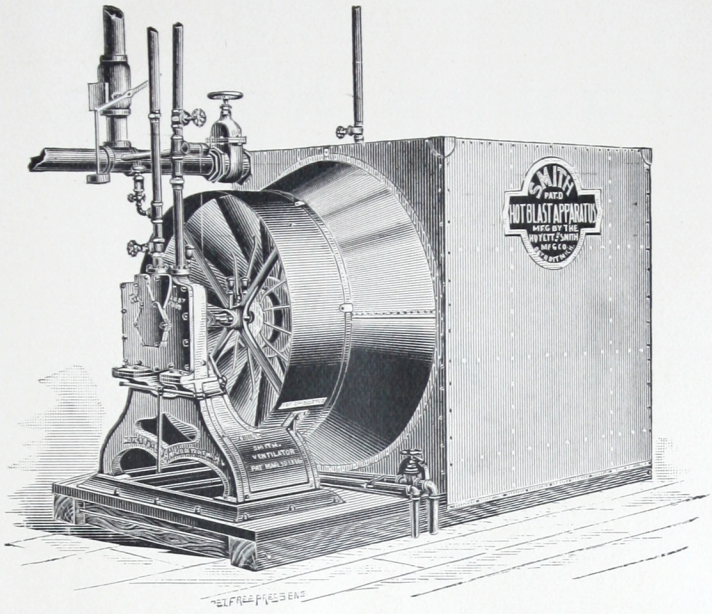
The Engines are made direct connected to the Heater fan, mounted on the same base with the fan and Heater, or are furnished detached driving with belt to fan pulley. These engines are strong, durable, and economical in the consumption of steam, and are constructed with the view of their receiving only indifferent care when in operation, and that they must run continuously 144 hours every week, and meet the requirements demanded of a hard worked engine. They are shipped complete with governor, governor belt, oilers, wrenches, etc. They occupy as little floor space for their horse-power as any engine made.



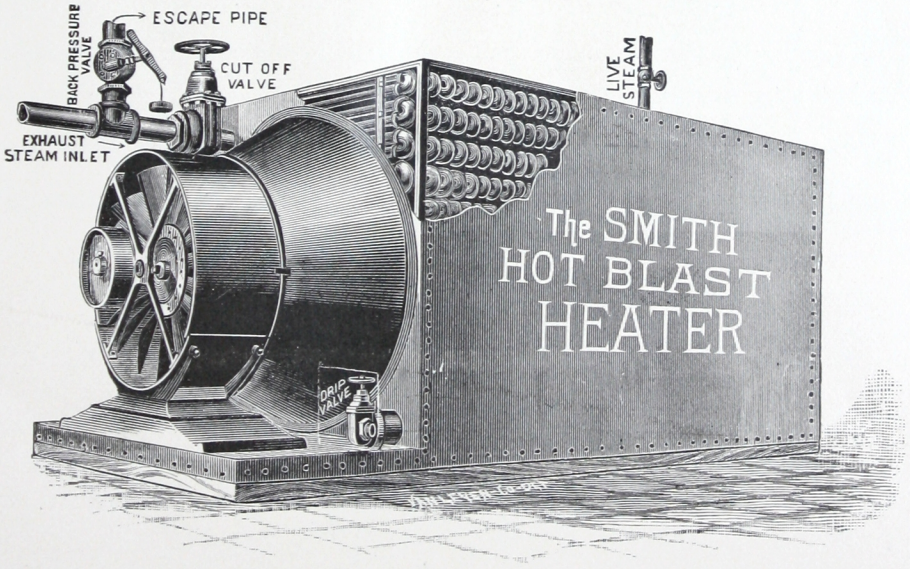
THE above cut represents the manner in which each coil of pipe, in our Smith Hot Blast Steam Heaters, are constructed and put together, each coil being connected with the top and bottom headers, by right and left hand threaded pipe. This arrangement allows any one coil to be removed from heater, without disturbing the remaining coils, therefore in no other style or construction of Steam Hot Blast Apparatus can repairs be made so readily, cheaply or effectively. The coils are held together lengthwise of the heater by steam pipe stays with flange nuts, screwed on ends, (letter A in cut). The coils are held in position vertically by flat bar iron side stays loosely bolted together at intervals (letter B in cut). Letter D represents T iron base support for bottom row of pipe, and side stays B. Letter C gives a sectional view of the manner in which we construct our return bends, the case (C) containing twice the area of the steam pipe which connects with the return bend, therefore (practically) no more resistance is offered to the free passage of the steam through the coil, than would be through straight pipe. These return bends are extra heft and thickness, and are provided with wide flat bearing surface at top and bottom, so that one rests on top of the other in a free and unobstructed manner. Whereas, each coil is separate, only connecting at top and bottom headers, held in position by loosely bolted flat iron side stays (B), the whole held together lengthwise by round pipe stays (A), it stands to reason that these coils have more freedom to expand and contract, and with less strain on the joints, pipe and bends, than would be possible with any other form of construction, and the drainage is perfect as the fall, or pitch of the pipe is 1¼ inches in four feet.

Smith Hot Blast Apparatus.

PATENTED.



THE ABOVE CUT illustrates the Smith Hot Blast Heater with direct attached engine for driving fan. The exhaust of engine being connected to main exhaust steam header of Heater



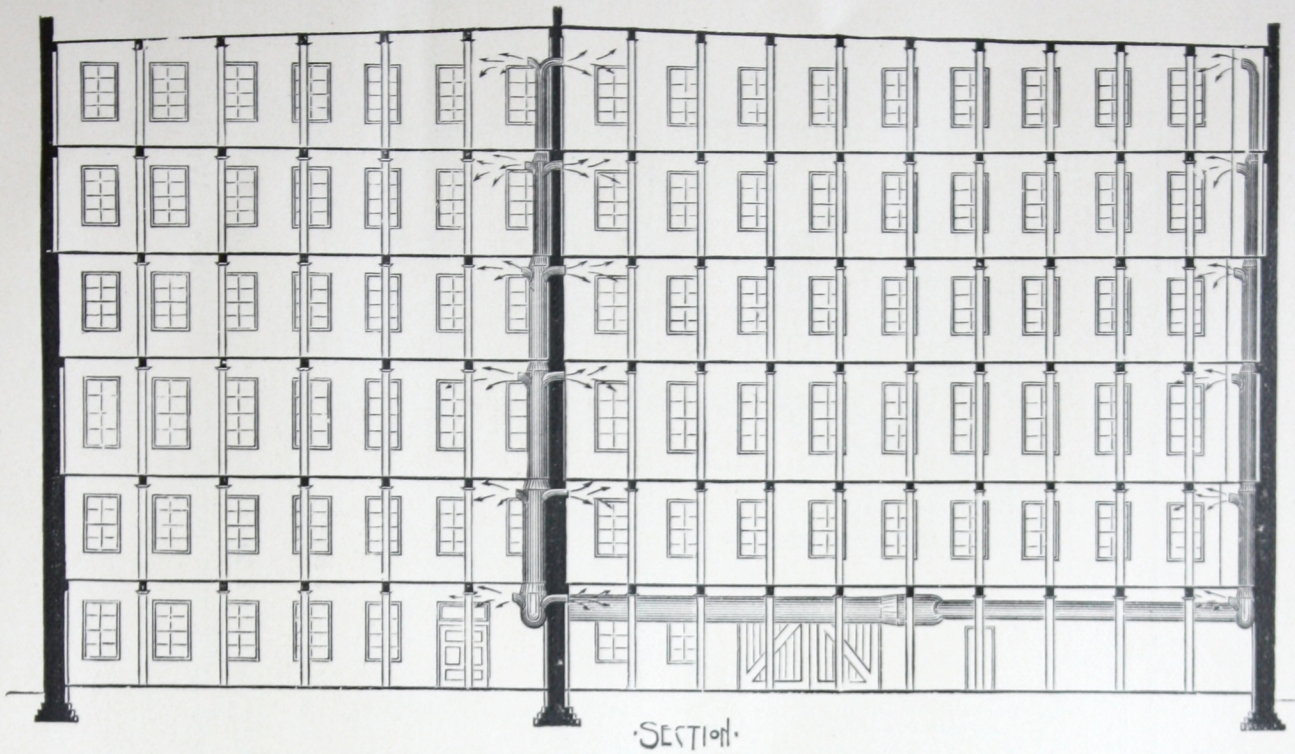
THE ABOVE CUT illustrates the Smith Hot Blast Heater without engine attached, and with upper right hand corner of heater jacket broken away, to show construction of heater and heater jacket.

Factory Heating.

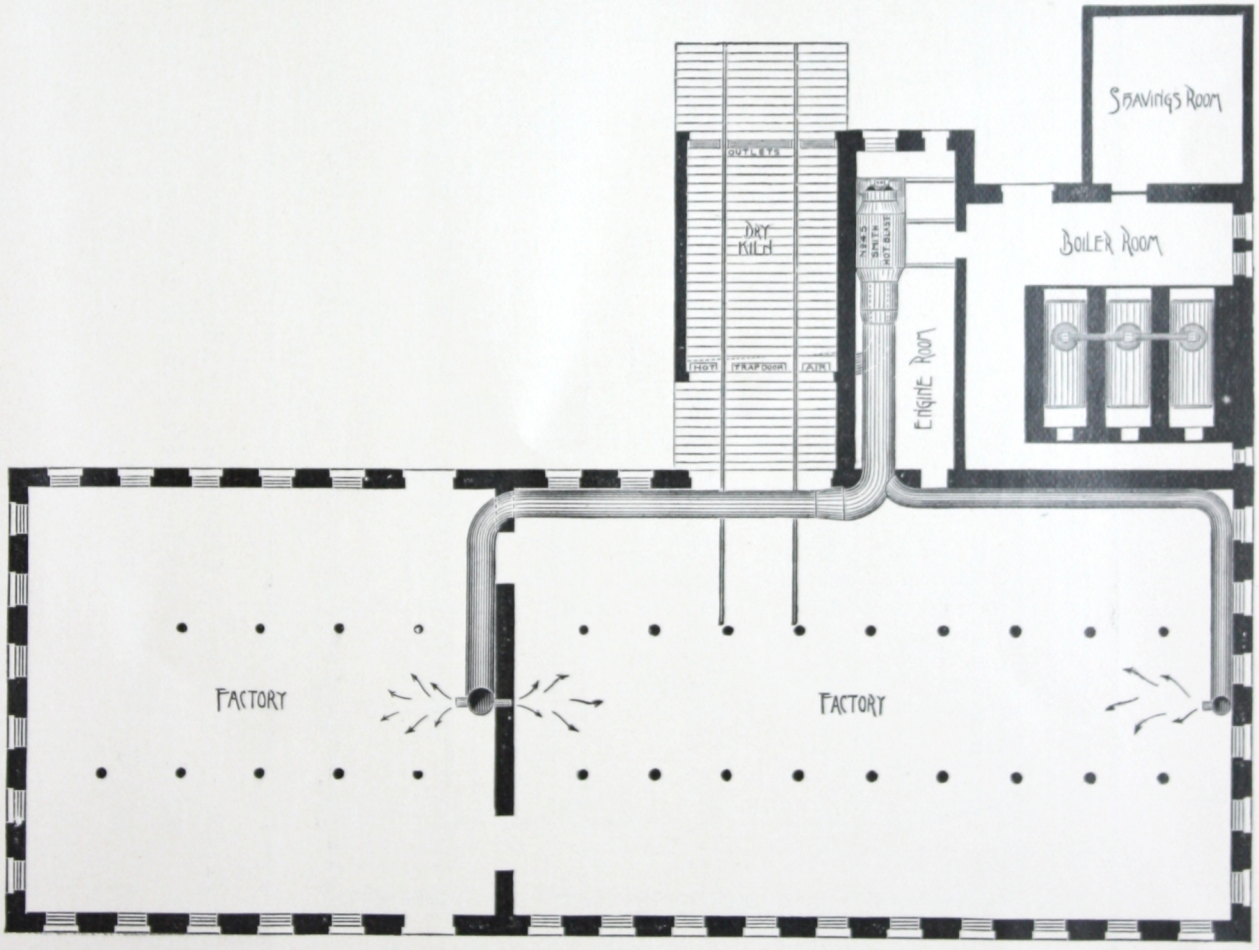
THE ILLUSTRATIONS on the opposite page show ground plan and sectional view of a large factory building, heated with our hot blast system, the same heater being connected with a dry kiln. This arrangement is often desirable and is found economical and efficient. Our system is applicable for factories of ALL KINDS and possesses among others the following advantages.

ECONOMY.—Use of exhaust steam in heating, and small amount of power required to drive fan as fully set forth on another page; also, avoidance of the necessity of repairs and steam pipes located throughout the building, as is the case with direct steam heating.

VENTILATION.—By the use of our system a constant change of air is obtained throughout the entire building, necessarily rendering the air pure and free from disagreeable and unwholesome odors produced in many kinds of manufacturing, and thereby enabling the operators to do more and better work as well as preserving their health.

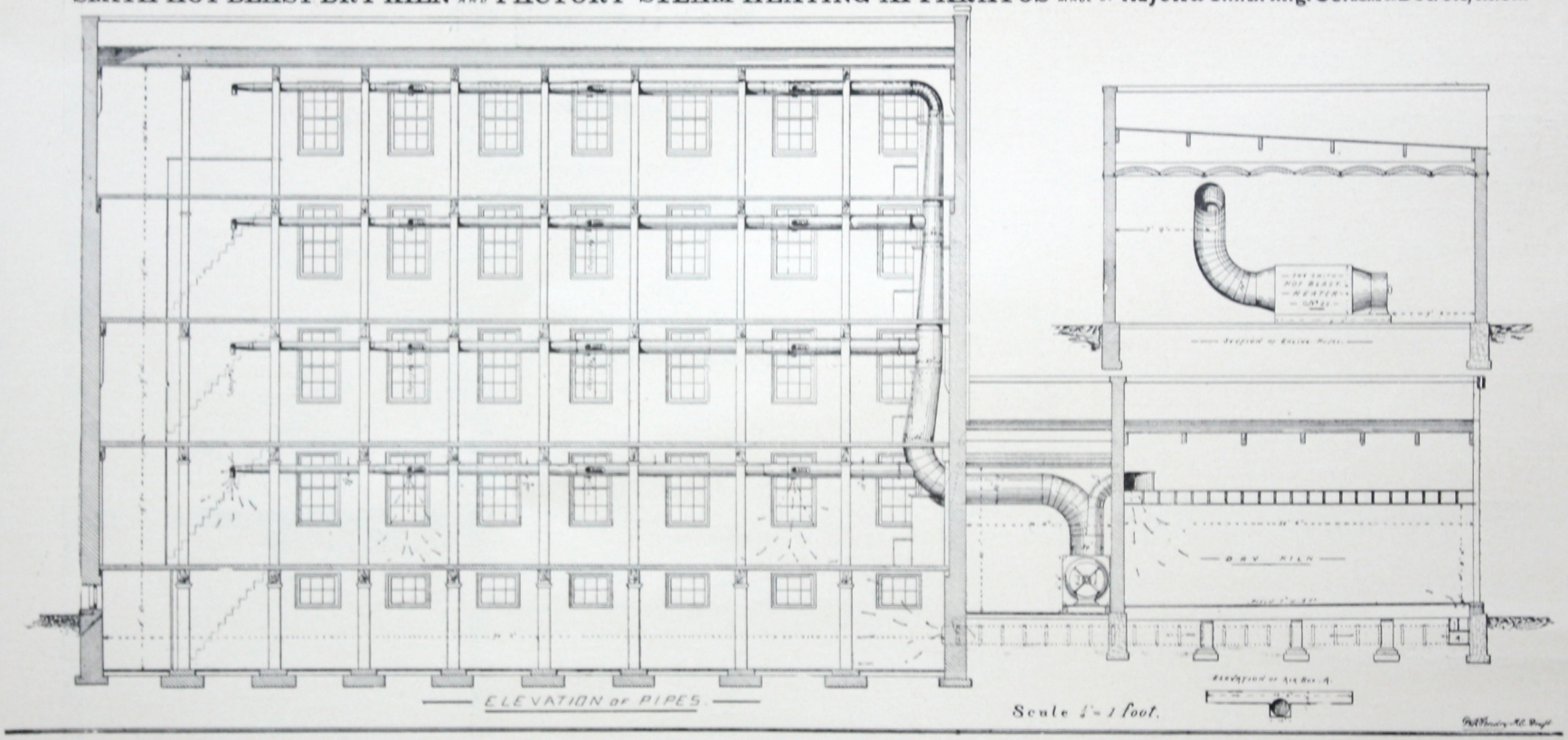


·SECTION·

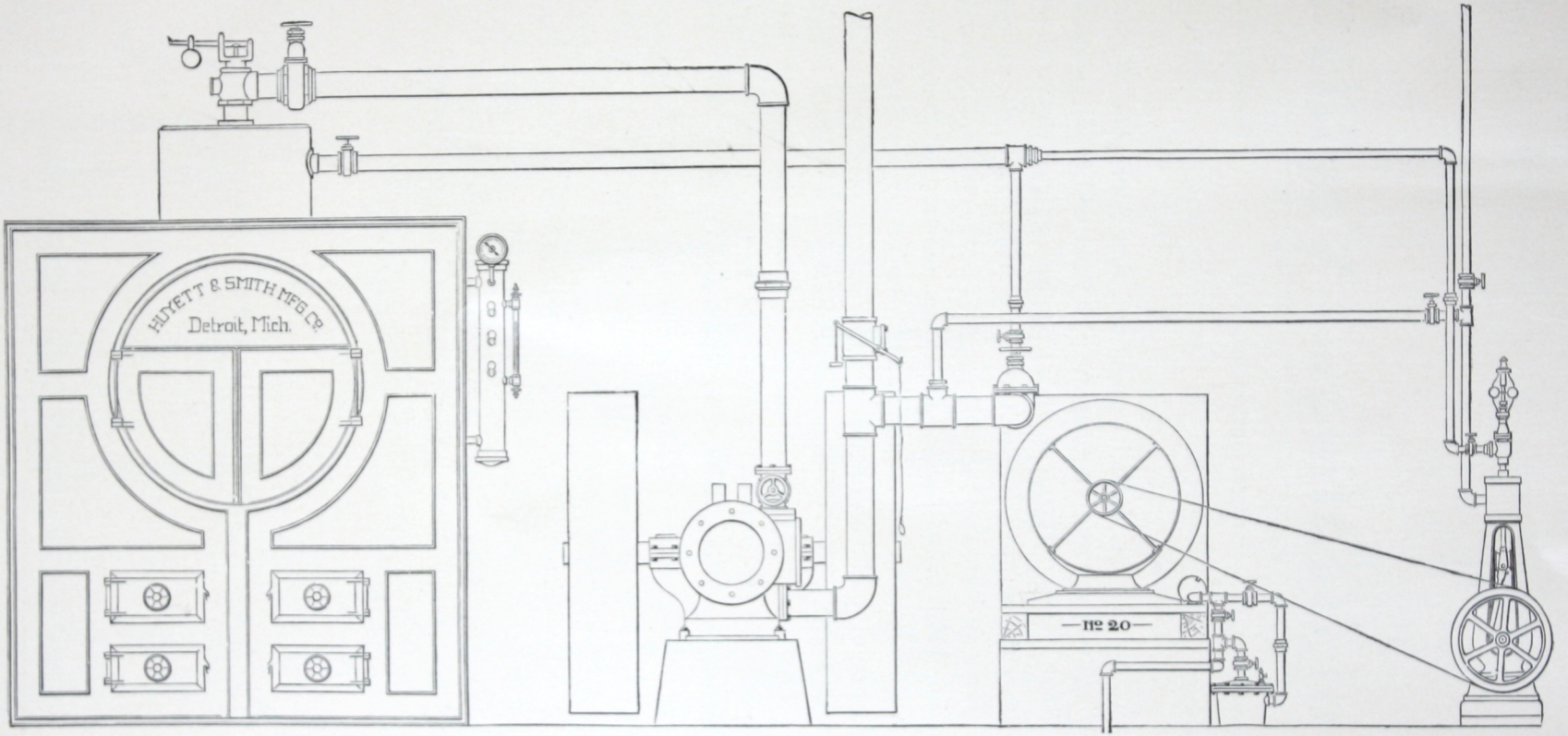


·FIRST·FLOOR·PLAN·

SMITH HOT BLAST DRY KILN AND FACTORY STEAM HEATING APPARATUS MADE BY Huyett & Smith Mfg. Co. 1100 Russell St. Detroit, Mich.



SECTIONAL ELEVATION of factory and dry kiln, showing how both factory and dry kiln can be operated from one apparatus. We have fitted out hundreds of factories in this way, and to the entire satisfaction and delight of the owners. Write us for testimonial circular of users.



THE ABOVE CUT shows the general principal and plan of making both LIVE and EXHAUST steam connections between the factory boiler and engine, and the Smith Hot Blast Apparatus. Special plans furnished when desired, upon application.

School Heating and Ventilation.

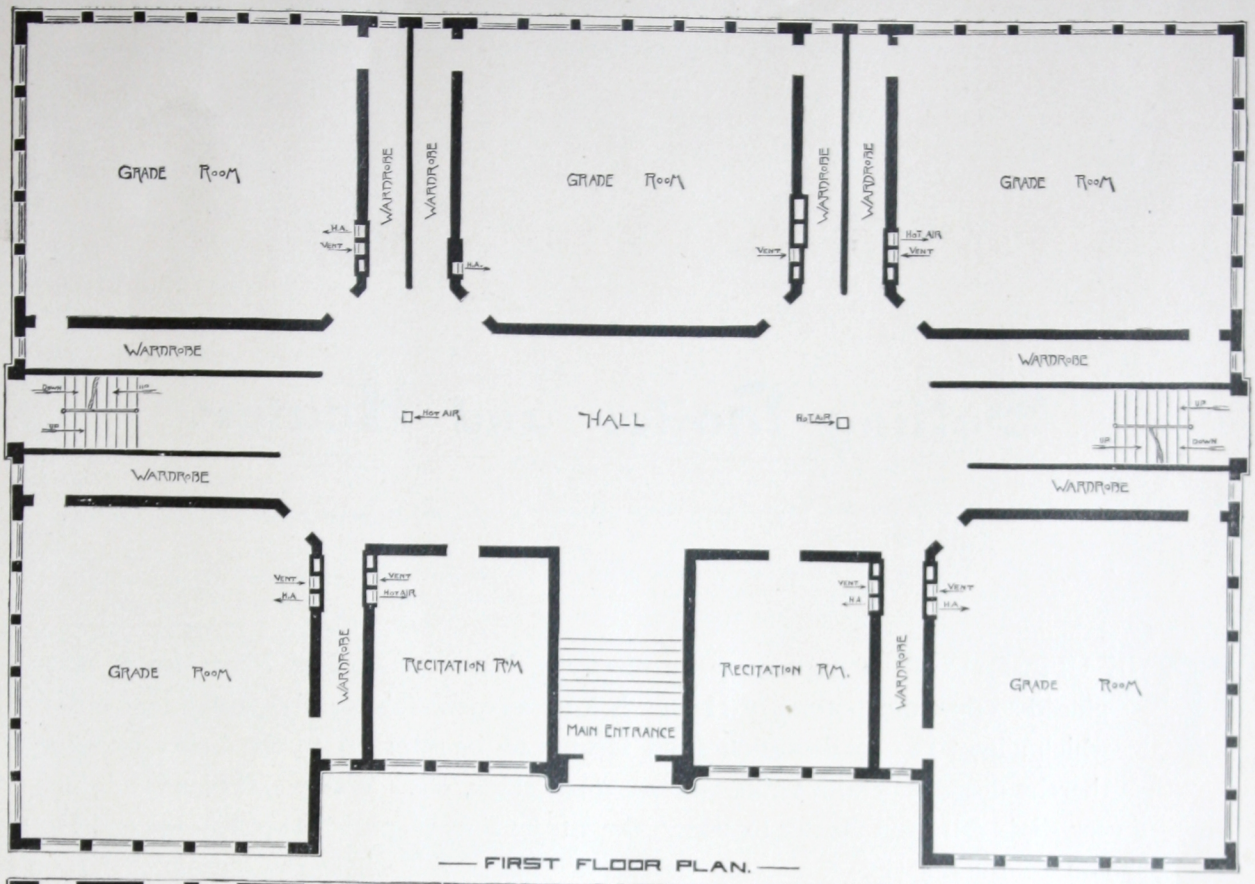
• • •

THE CUTS on opposite page, show basement and first floor plan of a modern 14 room school building (two stories above basement) heated and ventilated throughout by the Smith Hot Blast system. The air conduit pipes leading from Heater to the various brick ducts in walls communicating with each room are made double, the top conduit pipe conveys the fresh warm air from Heater to the register ducts, and the lower pipe conveys cold air direct from fan, which passes beneath the Heater and through these lower conduit pipes direct to the SAME REGISTER ducts in walls that the hot air pipes are connected with, see cut bottom of page 13, both being connected to a switch box placed in the wall at base of register duct. This switch box is arranged with an angle valve which is operated by a pull wire from the school-room, so that the teacher or janitor can close off the warm air partially or entirely, and in proportion as the warm air is shut off, the cold air duct is opened or vice versa, as the temperature of the room may require.

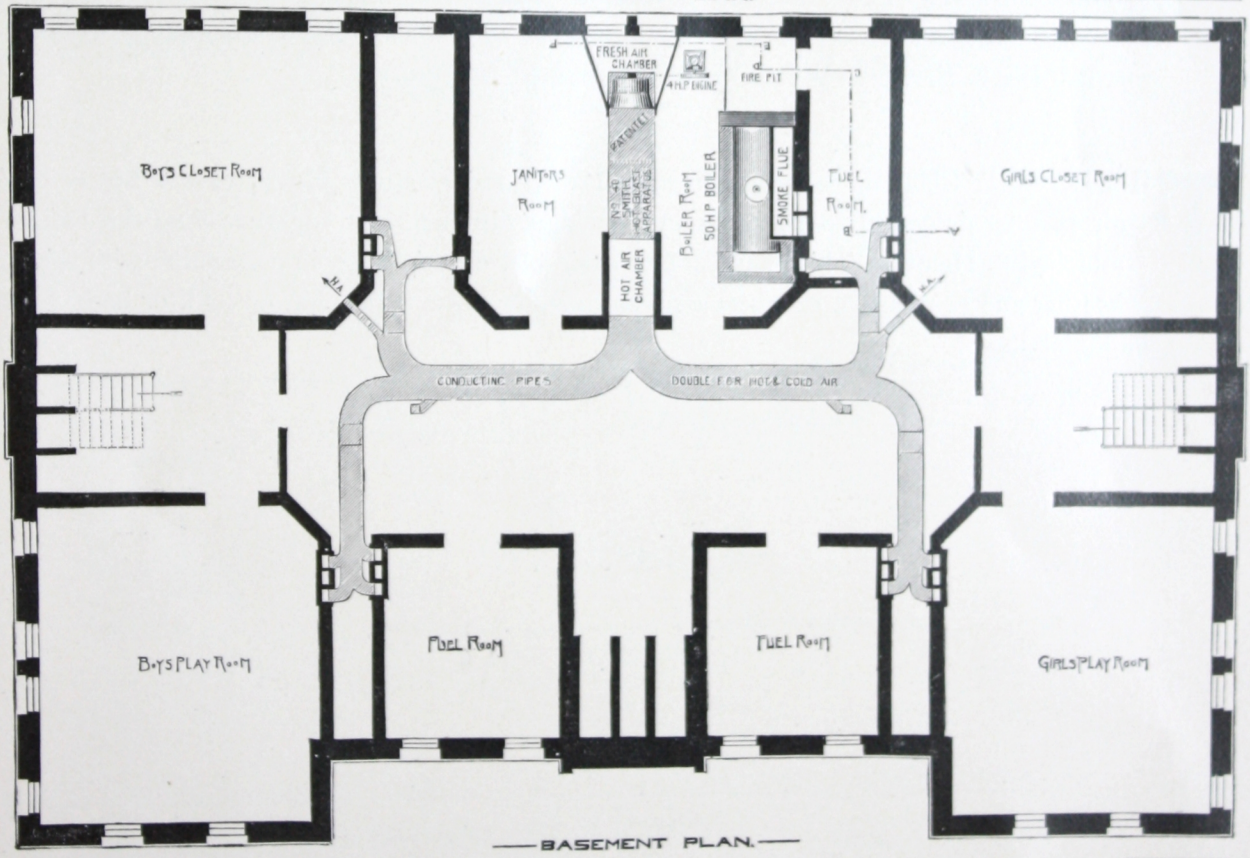
The fan carries an equal pressure on both the hot and cold air ducts, so that no matter which way the switch box valve may be placed, the same quantity of fresh air either hot or cold is constantly being supplied to the room.

This system of heating and ventilating is known as the Smith Indirect Steam Fan Blast system, and for health, cleanliness, convenience, economy, durability, and positive results obtained under any and all conditions of weather or temperature, it has no equal.

We contract for putting in plants of this description either entire, or for the apparatus only.



— FIRST FLOOR PLAN. —



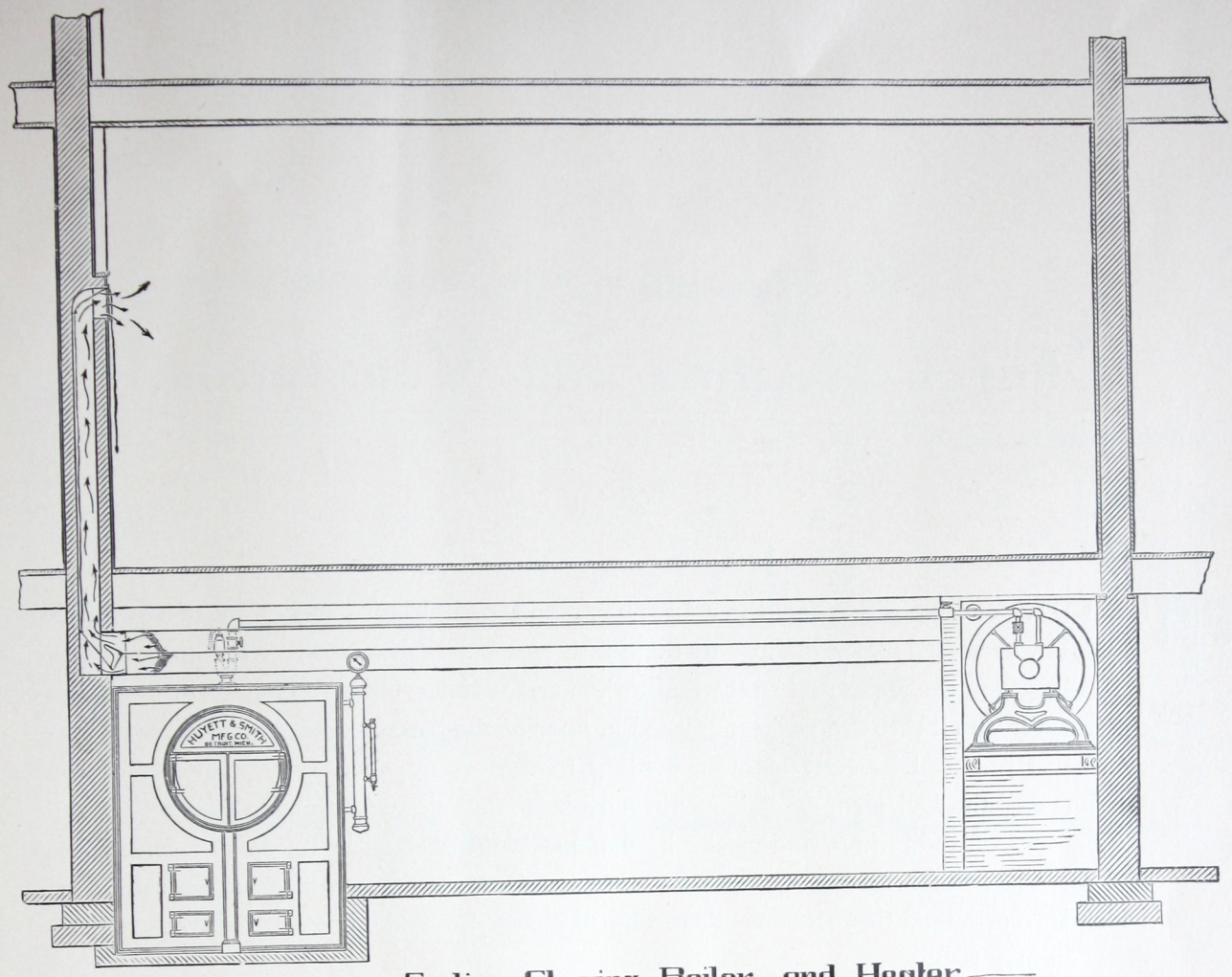
— BASEMENT PLAN. —

Setting Boiler and Heater.

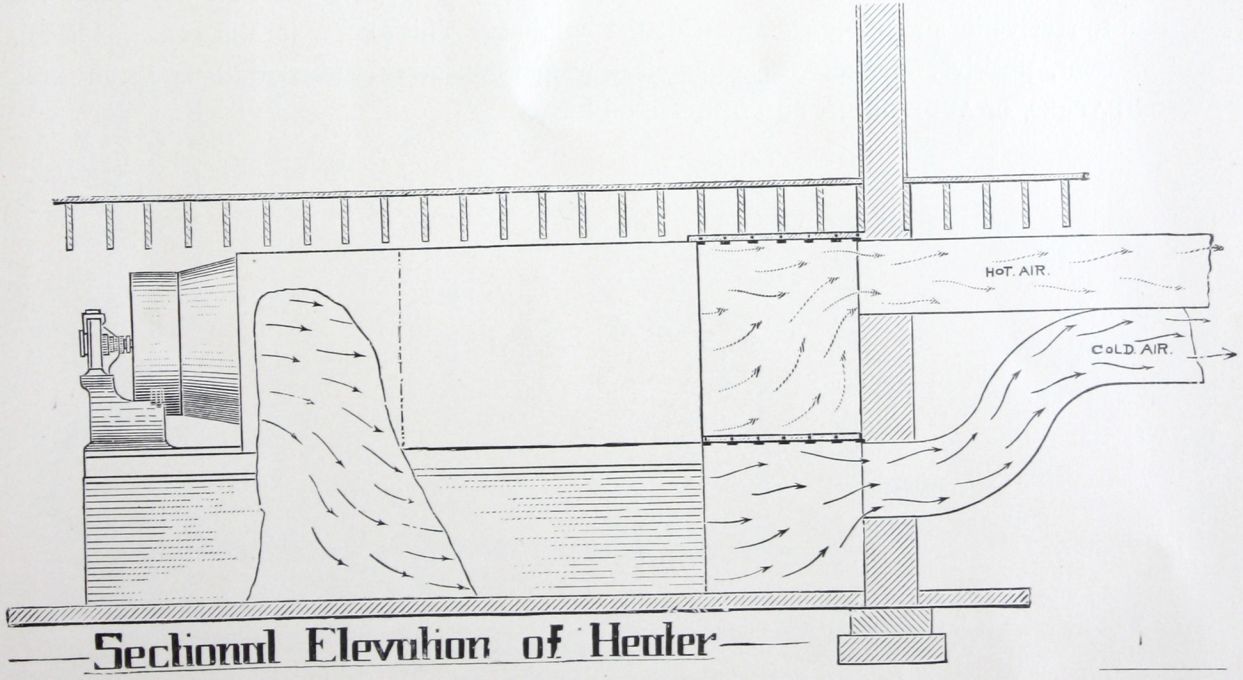
• • •

THE UPPER CUT on opposite page illustrates how a Smith Hot Blast Heater may be placed so that the bottom of Heater is 8 to 24 inches above high water line in boiler, which allows the condensation from Heater to be returned to the boiler by gravity, thereby dispensing with tanks, pumps, steam traps, etc. Where this plan is adopted on a very slight fall from Heater to boiler, the Steam Supply pipe between boiler and Heater should be the full size of the top header of Heater, but where the bottom of Heater is placed six or more feet above high water line in the boiler, the steam supply pipe can be one-half less in size.

THE LOWER CUT on opposite page of Heater and air ducts illustrates how hot or cold air may be delivered to registers in buildings, alternately or together from the one fan attached to Heater. This plan is often desirable, especially so in connection with school heating and ventilation, or where a given quantity of air, either hot or cold, or both, must be maintained.



Section Showing Boiler and Heater



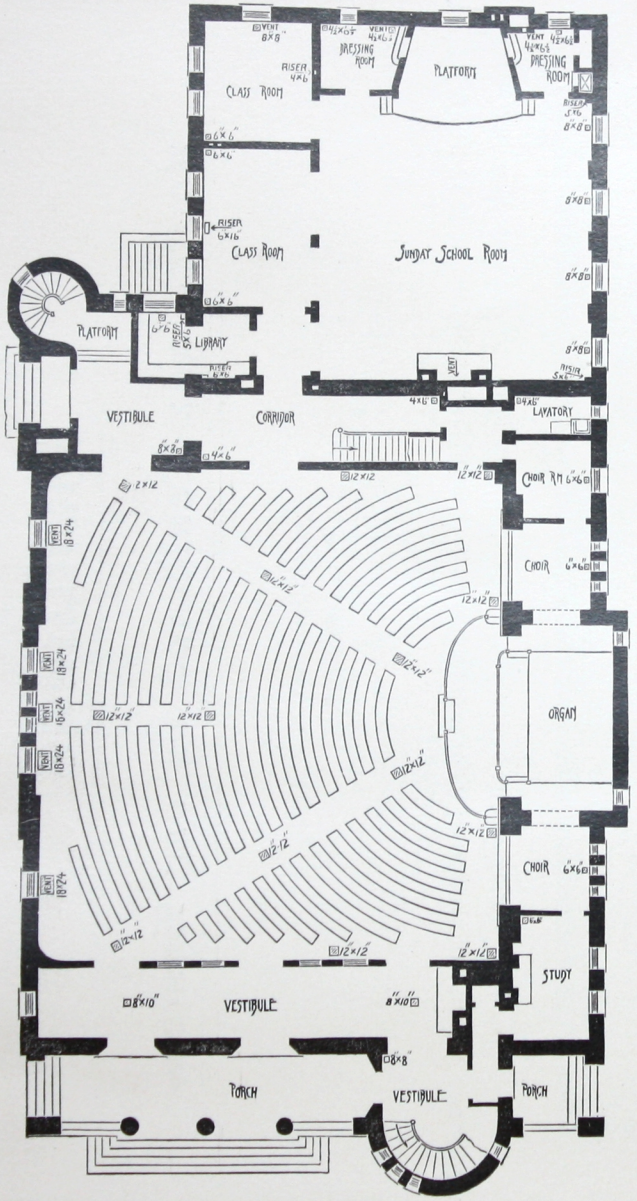
Sectional Elevation of Heater

Church Heating and Ventilation.

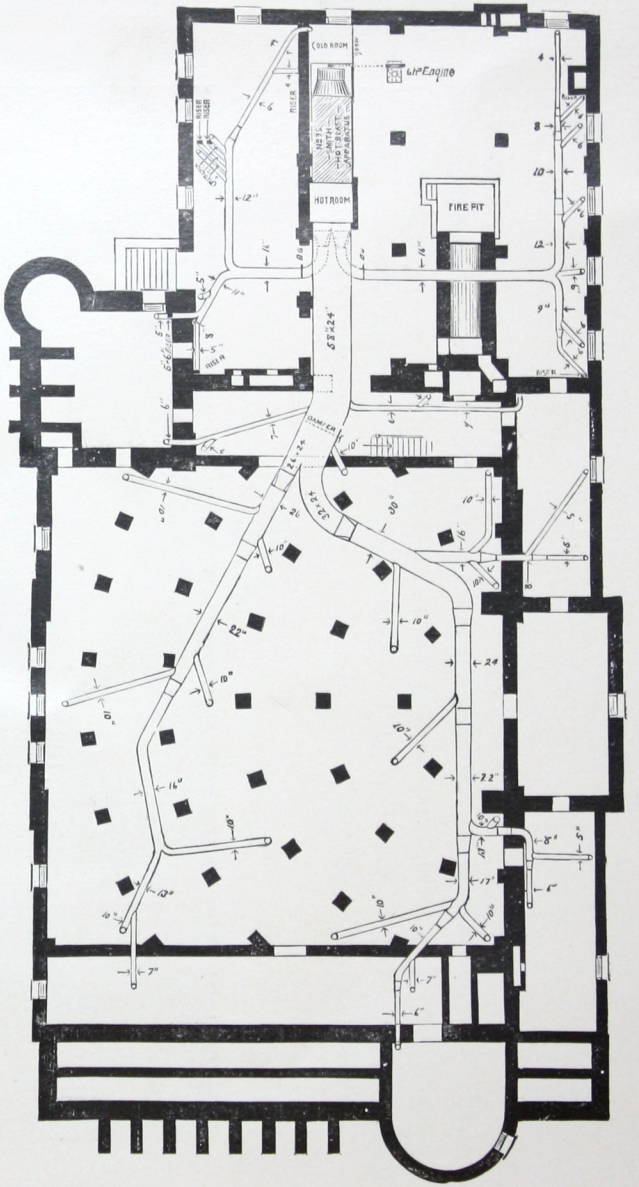
• • •

THE CUTS on opposite page show basement, and auditorium, floor plan of a church edifice, as heated and ventilated by the Smith Hot Blast Apparatus. The hot air ducts leading from the apparatus to the auditorium and various rooms to be heated, discharge the warm fresh air through registers placed in floor or the base beneath the pews, or wherever most practical or convenient, according to the arrangement of the interior of the building and the foul air is forced out through large foul air registers usually placed in the floor at rear of auditorium, and in the base of partitions or walls in the small rooms, these foul air ducts either leading to the attic or to basement, and connecting with a main duct which is so arranged that the foul air can be discharged outside, or returned to the fan, as occasion may require.

It is of importance when heating up church edifices before the congregation arrives, to return all the air to fan of Heater thereby re-circulating the air, and saving heat and fuel until the audience arrives, then turn the foul air outside, and open fresh air duct and allow the fan to receive its air supply from outside the building. This system is the most healthful, pleasant, positive, perfect and economical system of heating and ventilating CHURCHES, THEATRES, or AUDITORIUM BUILDINGS of all kinds.



FIRST FLOOR PLAN



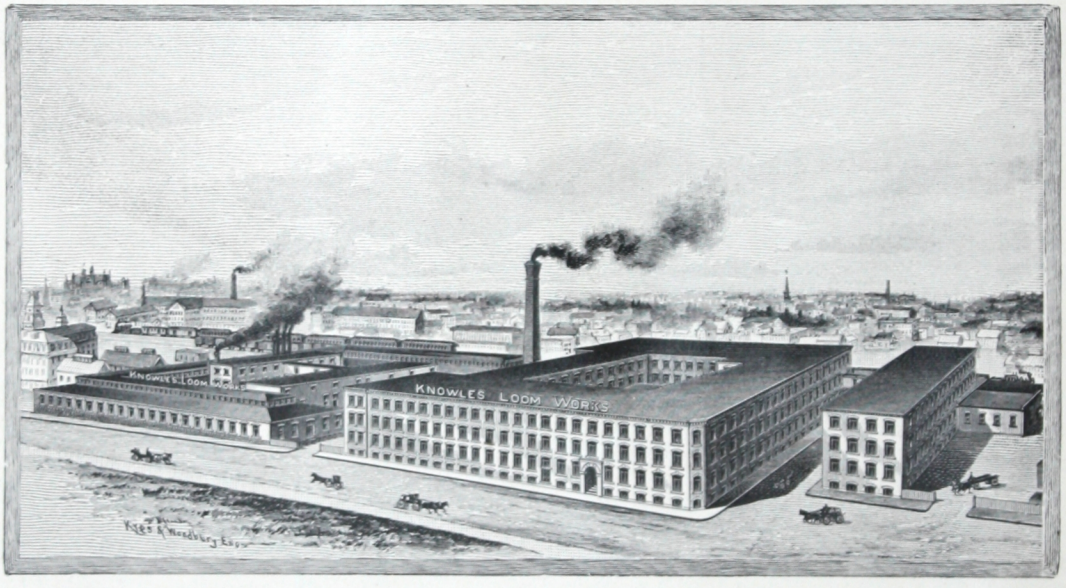
BASEMENT PLAN

Buildings

Heated and Ventilated by our System.

• • •

WE HERE PRESENT a few illustrations picked at random from hundreds in various parts of the country, showing the character of building for which the system is adapted.

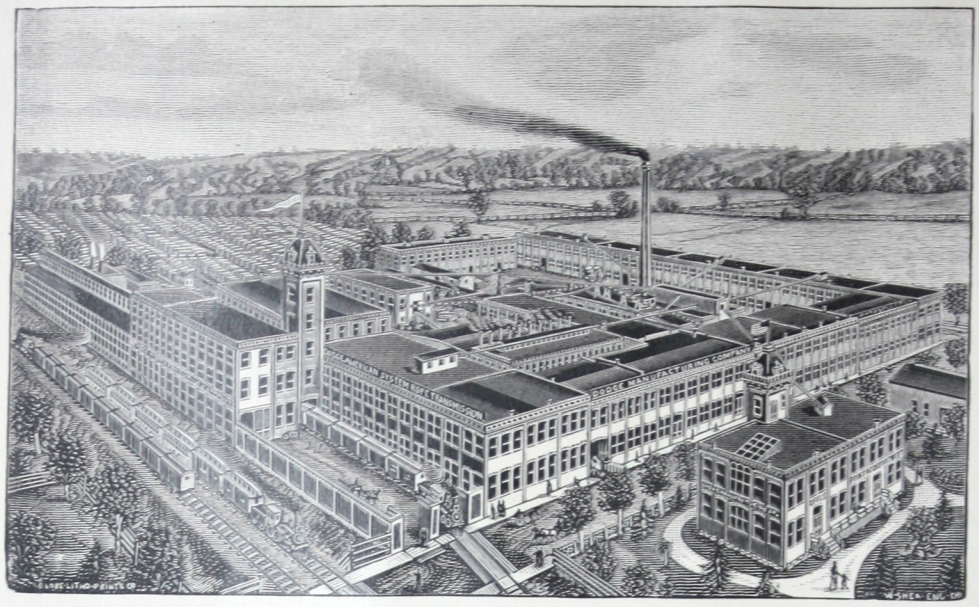


THE KNOWLES LOOM WORKS, WORCESTER, MASS.

THE MAIN BUILDING shown in above cut contains about 1,500,000 cubic feet of space. The hot air ducts are around court walls of buildings below basement floor, and built of brick and cement. Risers from these ducts are carried up in the walls, of such sizes as will furnish an abundance of air to thoroughly heat and ventilate each floor and all their apartments. Fan will deliver from 90,000 to 120,000 cubic feet per minute.

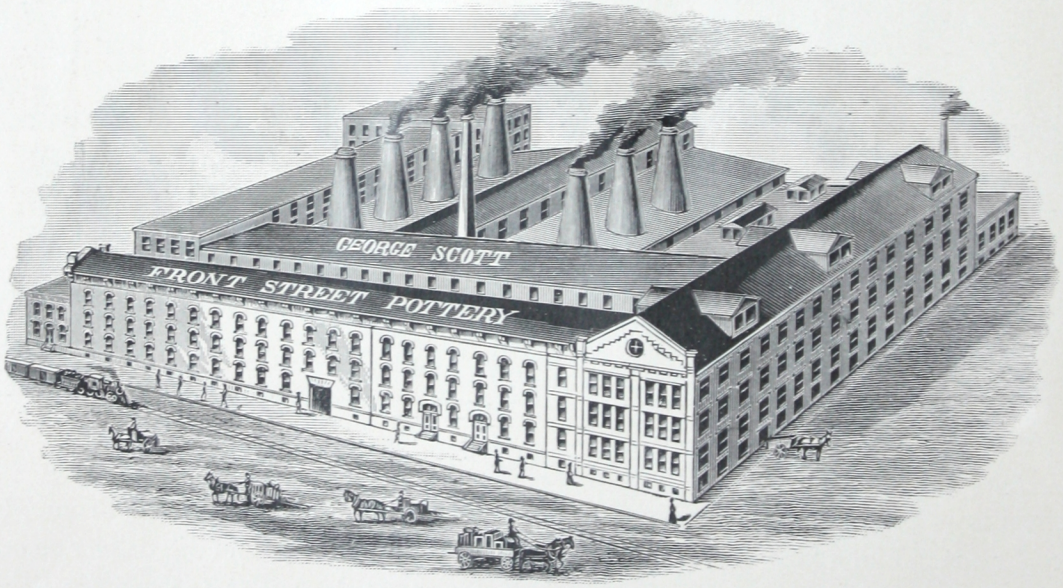
THE NEW MUNICIPAL COURT BUILDING, DETROIT.

THIS BUILDING contains 279,000 cubic feet of space, and is heated by the Smith Patent Hot Blast Apparatus. Fan attached to apparatus is 42 inches in diameter and will deliver 20,000 cubic feet of air per minute at a temperature ranging from 200 degrees to 300 degrees Fahrenheit.



THE DODGE MANUFACTURING COMPANY, MISHAWAKA, IND.

THE LARGEST manufacturers of Wood Split Pulleys in the United States. Building heated entirely by our system.



GEO. SCOTT'S SONS, POTTERY, FRONT STREET, CINCINNATI, OHIO.

. . . . . .

Factory heated and Dry Kilns operated by the Smith Hot Blast Heating Apparatus.

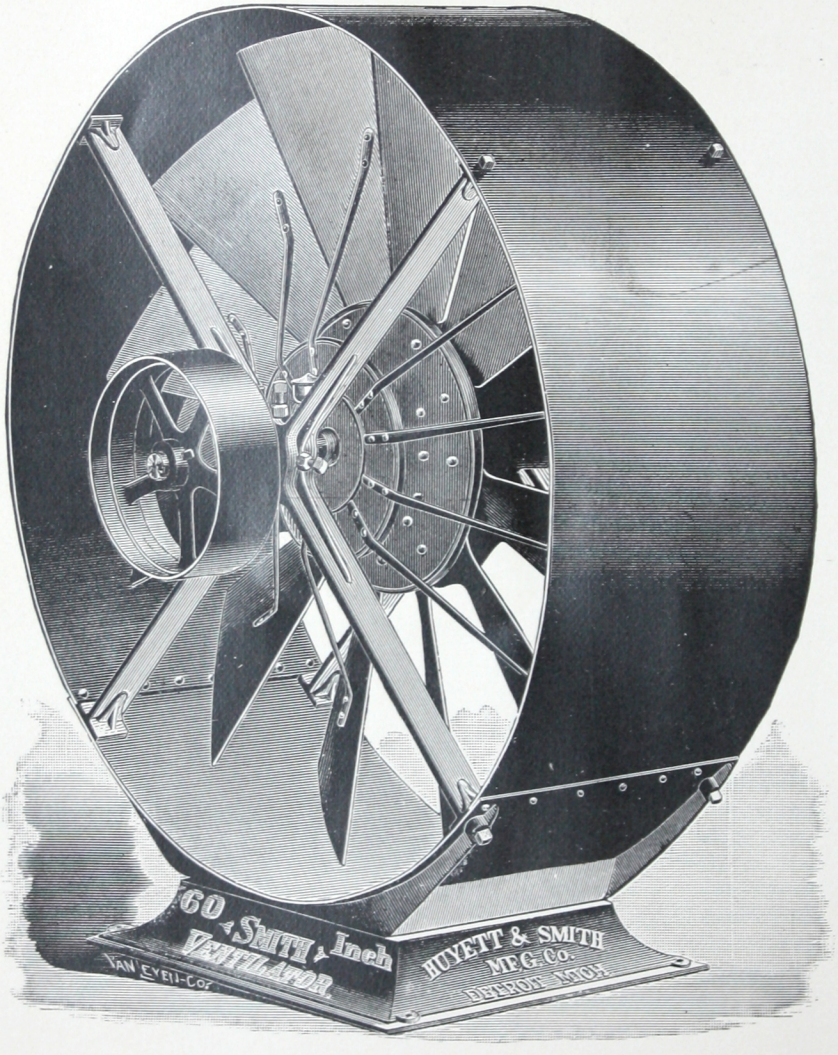
THE DOUGLAS SCHOOL, CHICAGO, ILL.

THE ABOVE ILLUSTRATION shows one of the largest, if not the largest, handsomest, and best equipped Public School buildings in existence, an important feature of which is the system of ventilation designed and put in by the Huyett & Smith Mfg. Co.

Smith Ventilator and Drying Fan

. . . . . FOR . . . . .

Paper Mills, Woolen Mills, Chemical Labratories, Malt Houses, Tobacco Factories, Foundries, Public Buildings, Restaurants, Laundries, Stores, and for use in all places where a constant change of air is required for Drying, Cooling, Ventilating, Etc.



THE SMITH FAN is the only one made with a solid base, but is furnished with flanges for bolting to casing when circumstances require it, there being no difference in price.

Price List

· · · OF THE · · ·

Smith Ventilator Fans.

• • •

SIZES.	18 Inches.	21 Inches.	24 Inches.	30 Inches.	34 Inches.	42 Inches.
Diameter and Face of Pulley . . .	4 x 3½	5 x 3½	6 x 4½	7 x 4½	8 x 4½	10 x 5½
Size of Base	13½ x 12	13½ x 12	20 x 16	19½ x 22	22 x 22	24 x 28
Height of Base	3½ inches	3½ inches.	4½ inches.	5 inches.	5 inches.	5 inches.
Revolutions per minute	1,300 to 1,800	1,200 to 1,700	1,000 to 1,500	900 to 1,200	800 to 1,000	600 to 900
Capacity in cu. ft. of air per minute	6,000	8,000	10,000	15,000	20,000	30,000
Price	**$40**	**$45**	**$50**	**$65**	**$75**	**$100**
Weight	70 lbs.	80 lbs.	135 lbs.	175 lbs.	210 lbs.	330 lbs.
H. P. required at Minimum Speed.	.75	95	1.30	1.55	1.75	2.25

SIZES.	48 Inches.	54 Inches.	60 Inches.	72 Inches.	84 Inches.	96 Inches.
Diameter and Face of Pulley. . .	12 x 5½	13 x 6½	14 x 6½	16 x 7½	18 x 7½	20 x 7½
Size of Base	24 x 28	28 x 38	28 x 38	28 x 38	No Base.	No Base.
Height of Base	5 inches.	5 inches.	5 inches.	5½ inches.	No Base.	No Base.
Revolutions per minute	500 to 800	450 to 750	350 to 500	300 to 450	250 to 400	225 to 350
Capacity in cu. ft. of air per minute	40,000	50,000	60,000	85,000	120,000	150,000
Price	**$125**	**$165**	**$200**	**$275**	**$375**	**$475**
Weight	430 lbs.	550 lbs.	660 lbs.	995 lbs.		
H. P. required at Minimum Speed .	2.75	3.50	4.25	5.25	6.75	8.50

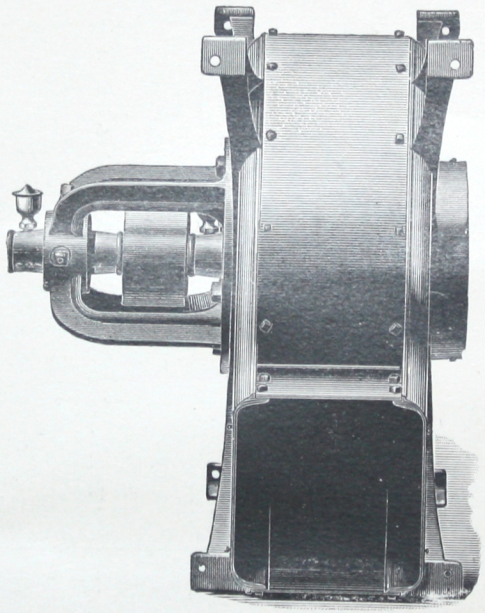
THE ABOVE PRICES are subject to a discount to the trade which will be quoted on application.

OUR VENTILATOR FAN as illustrated on opposite page, is made of the best material throughout. The blades are made of specially selected steel, and on all sizes larger than 36 inch, are braced as shown in cut. The casing is of the best steel. All castings are our own make, and the shafting, journals, oilers, etc., are the best obtainable.

The general design and finish of this fan is beyond comparison. Our first consideration however, has been that of efficiency, and we will guarantee that with equal expenditure of power to operate it will deliver at least 25 per cent more air than any other fan. Combining as it does, FINISH, DURABILITY AND ECONOMY, the Smith Fan maintains the lead.

The Smith Dixie Exhaust Fan.

THIS FAN is designed for exhausting foul air, gases, etc., in places where the conditions render the use of the Ventilator type difficult or impossible. It is ECONOMICAL, STRONG, SAFE, NOISELESS, and can be placed in any position. Further particulars on application.



RIGHT HAND "DIXIE" EXHAUSTER.

Price List Single Wheel, Single Inlet Fans

No. of Fan	PRICE.	Diameter of Inlet	Outlet.	No. of Sqr. inches Inlet	No. of Sqr. inches outlet	Diameter of Blast Wheel	Diameter of Pulley.	Face of Pulley.	Revolutions per Minute	Weight Lbs.
14	$ 50.00	9 inch.	7½ x 8½ inch.	63	64	14 inch	4½ inch.	3¼ inch.	2,500 to 2,800	175
18	75.00	11 "	9½ x 10½ "	95	100	18 "	6 "	3¼ "	2,000 to 2,400	250
22	100.00	13 "	11½ x 12½ "	132	144	22 "	7 "	4¼ "	1,800 to 2,200	375
26	125.00	15 "	13½ x 14½ "	176	195	26 "	8 "	5¼ "	1,400 to 1,600	500
30	175.00	17 "	15½ x 16½ "	226	255	30 "	10 "	6¼ "	1,200 to 1 400	750

Price List of Smith "Dixie" Exhaust Fans (Double)

No. of Fan.	PRICE.	Diameter of Inlet.	Outlet.	No. of Sqr. inches Inlet	No. of Sqr. inches outlet	Diameter of Blast Wheel	Diameter of Pulley.	Face of Pulley.	Revolutions per Minute.	Weight Lbs.
14	$ 75.00	9 inches.	7½ x 8½ inch.	126	128	14 inch.	4½ inch.	5¼ inch.	2,500 to 2,800	350
18	100.00	11 "	9½ x 10½ "	190	200	18 "	6 "	5¼ "	2,000 to 2,400	500
22	140.00	13 "	11½ x 12½ "	264	288	22 "	7 "	6¼ "	1,800 to 2,200	700
26	185.00	15 "	13½ x 14½ "	352	390	26 "	8 "	7¼ "	1,400 to 1,600	900
30	250.00	17 "	15½ x 16½ "	452	510	30 "	10 "	8¼ "	1,200 to 1,400	1,400

The Huyett & Smith Mfg. Co.

ALSO MANUFACTURE THE CELEBRATED

SMITH

Hot Blast Dry Kiln Apparatus,

FOR LUMBER, BRICK, AND ALL DRYING PURPOSES.

Exhaust Fans,

FOR REMOVING SHAVINGS AND DUST.

Shavings and Dust Arrestors,

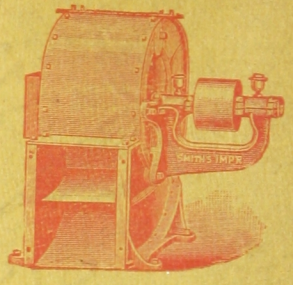
Cupola Forge and Pressure Blowers,

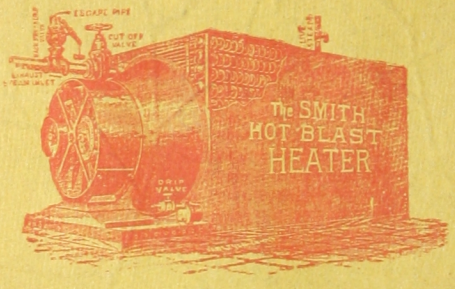
Dixie Seed Cotton Elevator Fans.

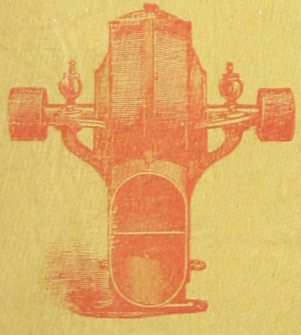
ETC., ETC., ETC.

Catalogues and Circulars of the above will be furnished on application.


Gies & Co.
Printers and Engravers
Buffalo, N. Y.




ESCAPE PIPE
CUT OFF VALVE
DRIP VALVE
The SMITH
HOT BLAST
HEATER




SMITH'S DIXIE
No 18